



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/539,412	03/30/2000	Masaharu Ogawa	Q56557	8161

7590

12/11/2002

Darryl Mexic
Sughrue Mion Zinn MacPeak & Seas
2100 Pennsylvania Avenue NW
Washington, DC 20037-3202

EXAMINER

LEE, SHUN K

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 12/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/539,412

Applicant(s)

OGAWA ET AL.

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6-9, 11 and 13 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 30 September 2002 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 14.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 15.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2878

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 30 September 2002 have been disapproved. The drawings are still objected to because "17a" remaining in the end view in Fig. 2C of the proposed drawing correction should probably be --16a--. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Objections

2. Claim 12 is objected to because of the following informalities: in claim 12, "said voltage application means" on line 10 should probably be --said first voltage application means-- (to avoid confusion with control voltage application means) and "voltage application means" on line 6 should probably be --first voltage application means--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 7, 8, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji *et al.* (US 5,196,702).

Art Unit: 2878

In regard to claims 1 and 4, Tsuji *et al.* disclose (Fig. 1) a radiation solid-state detector which has a charge storing section (103) for storing the charges of the quantity corresponding to the dose of the radiation which has been projected, and records radiation image information as a static latent image in said charge storing section (103), wherein

- (a) a first electrode layer (104) having permeability to radiation for recording (100) or light emitted by excitation on the radiation,
- (b) a photoconductive layer for recording (101) which exhibits conductivity when irradiated with said radiation for recording (100) or said light,
- (c) a photoconductive layer for reading (102) which exhibits conductivity when irradiated with an electromagnetic wave for reading (110), and
- (d) a second electrode layer (105) having permeability to said electromagnetic wave for reading (110), are provided in this order, and a first conductive member (105) for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording (101) and said photoconductive layer for reading (102) is provided in said second electrode layer (105).

In regard to claim 7 which is dependent on claim 1, Tsuji *et al.* also disclose (Fig. 1) that a trap layer (e.g., electron capture layer; column 12, lines 11-15) for catching said latent image charges is provided between said photoconductive layer for recording (101) and said photoconductive layer for reading (102), and the trap layer forms said charge storing section (103).

Art Unit: 2878

In regard to claim 8 which is dependent on claim 1, Tsuji *et al.* also disclose (Fig. 16) that the electrode constituting said second electrode layer and/or said first conductive member is a stripe electrode (1605) comprising a number of linear electrodes (1605a, 1605b).

In regard to claim 11, the method steps are implicit for the apparatus of Tsuji *et al.* since the structure is the same as the applicant's apparatus of claim 1.

In regard to claim 13 which is dependent on claim 1, Tsuji *et al.* also disclose (column 1, lines 9-43) a radiation image reading device including the radiation solid-state detector in Fig. 1 in which radiation image information has been recorded as a static latent image, comprising an image signal acquisition means (e.g., 1408 in Fig. 14; 1608, 1664, 1665 in Fig. 16; column 28, lines 11-14) which, by reading out the charges corresponding to the latent image charges stored in the charge storing section of said radiation solid-state detector through said first conductive member, provides an electric signal at a level corresponding to the quantity of said latent image charges.

5. Claims 1, 6-9, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Imai (EP 0 898 421).

In regard to claim 1, Imai discloses (Figs. 15A-C) a radiation solid-state detector which has a charge storing section for storing the charges of the quantity corresponding to the dose of the radiation which has been projected, and records radiation image information as a static latent image in said charge storing section, wherein

(a) a first electrode layer (1) having permeability to radiation for recording or light emitted by excitation on the radiation,

Art Unit: 2878

- (b) a photoconductive layer for recording (2) which exhibits conductivity when irradiated with said radiation for recording or said light,
- (c) a photoconductive layer for reading (4) which exhibits conductivity when irradiated with an electromagnetic wave for reading, and
- (d) a second electrode layer (either 5 or 8) having permeability to said electromagnetic wave for reading, are provided in this order, and a first conductive member (5a) for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording (2) and said photoconductive layer for reading (4) is provided in said second electrode layer (5) or between said first electrode layer (1) and said second electrode layer (either 5 or 8).

In regard to claim 6 which is dependent on claim 1, Imai also discloses (Figs. 15A-C) a charge transporting layer (3) which acts roughly as an insulator for said latent image charges, and roughly as a conductor for charges opposite in polarity to the latent image charges is provided between said photoconductive layer for recording (2) and said photoconductive layer for reading (4), and the charge transporting layer (3) forms said charge storing section.

In regard to claim 7 which is dependent on claim 1, Imai also discloses (Figs. 15A-C) a trap layer (3) for catching said latent image charges is provided between said photoconductive layer for recording (2) and said photoconductive layer for reading (4), and the trap layer (3) forms said charge storing section.

Art Unit: 2878

In regard to claim **8** which is dependent on claim 1, Imai also discloses (Figs. 15A-C) that the electrode constituting said second electrode layer (8) and/or said first conductive member (5a) is a stripe electrode comprising a number of linear electrodes.

In regard to claim **9** which is dependent on claim 1, Imai also discloses (Figs. 15A-C) that the electrode constituting said second electrode layer (8) and said first conductive member (5a) is a stripe electrode comprising a number of linear electrodes, and the linear electrodes of said first conductive member (5a) are disposed so that they are opposed to or almost orthogonally intersect the linear electrodes of the electrode (8a) constituting said second electrode layer (8).

In regard to claim **11**, the method steps are implicit for the apparatus of Imai since the structure is the same as the applicant's apparatus of claim 1.

In regard to claim **13** which is dependent on claim 1, Imai also discloses a radiation image reading device which, from the radiation solid-state detector in Figs. 15A-C in which radiation image information has been recorded as a static latent image, reads out said radiation image information, comprising: image signal acquisition means (70 in Fig. 2) which, by reading out the charges corresponding to the latent image charges stored in the charge storing section of said radiation solid-state detector through said first conductive member, provides an electric signal at a level corresponding to the quantity of said latent image charges.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2878

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji *et al.* (US 5,196,702) in view of Kempter (US 4,535,468).

In regard to claim 6 which is dependent on claim 1, the radiation image recording device of Tsuji *et al.* lacks that the charge storage section is a charge transporting layer which acts roughly as an insulator for said latent image charges, and roughly as a conductor for charges opposite in polarity to the latent image charges is provided between said photoconductive layer for recording and said photoconductive layer for reading. Kempter teaches (column 3, line 55 to column 4, line 17) to provide as the charge storage section a charge transporting layer which acts roughly as an insulator for the latent image charges (*i.e.*, latent image charges are trapped and thus acts roughly as an insulator for the latent image charges), and roughly as a conductor for charges opposite in polarity to the latent image charges (*i.e.*, storage layer permits

migration of charges to neutralize trapped latent image charges and thus acts roughly as a conductor for charges opposite in polarity to the latent image charges) in order to obtain complete erasure so as to prevent formation of ghost images. Therefore it would have been obvious to one having ordinary skill in the art to provide a charge transporting layer as the charge storage section in the radiation image recording device of Tsuji *et al.*, in order to obtain complete erasure so as to prevent formation of ghost images as taught by Kempter.

Allowable Subject Matter

9. Claims 2, 3, 10, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be directed to a nonobvious improvement over the invention patented in US Patent 5,196,702. The improvements comprise in combination with other recited elements, a first conductive member provided at a location in or on the face of the photoconductive layer for recording which is close to the photoconductive layer for reading, a control voltage application means for applying, to the first conductive member, a control voltage to adjust the electric field formed between the first electrode layer and the second electrode layer by a DC voltage applied by a first voltage application means.

Response to Arguments

11. Applicant's arguments filed 30 September 2002 have been fully considered but they are not persuasive.

First it should be noted that independent claim 1 recites the limitation of "a second electrode layer having permeability to said electromagnetic wave for reading, are provided in this order". Thus the claim limits the location of a layer (see 15 in Figs. 5A-C) having electrodes (16a in Figs. 5A-C) and permeability to electromagnetic waves for reading (L3 in Figs. 5A-C). Additionally, it should also be noted that independent claim 1 recites the limitation of "a first conductive member for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording and said photoconductive layer for reading". The specification discloses (Figs. 5A-C; pg. 35, line 6 to pg. 38, line 2) a first conductive member (16a) for outputting an electric signal corresponding to the quantity of the latent image charges stored in the charge storing section (19) formed between the photoconductive layer for recording (12) and the photoconductive layer for reading (14). It is important to recognize (see Figs. 5A-C) that during the reading process (*i.e.*, outputting an electric signal corresponding to the quantity of the latent image charges stored in the charge storing section), first electrode layer (11) is connected to elements (17a) of sub-electrode (17) and it is the first conductive member (16a) which is connected to the integrating capacitor (71b). That is, the first conductive member (elements 16a of strip electrode 16) outputs an electric

signal corresponding to the quantity of the latent image charges stored in the charge storing section to the integrating capacitor (71b).

Applicant argues (last two paragraphs on pg 10 to first two paragraphs on pg 12 of remarks filed 30 September 2002) that the recited second electrode layer and the first conductive member are not the same element and cites Fig. 18A as illustrating a second electrode layer (25) and a first conductive member (sub-electrode 27a). Examiner respectfully disagrees. First it is noted that Fig. 18A illustrates a layer 25 (second electrode layer) comprising of two sets of linear electrodes (*i.e.*, strip electrode 26 and sub-electrode 27). However, it is important to remember that independent claim 1 recites the limitation of "a first conductive member for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording and said photoconductive layer for reading". Thus the first conductive member is the electrode which outputs an electric signal corresponding to the quantity of the latent image charges. As discussed above, it is the strip electrode (16 in Figs. 5A-C) which outputs an electric signal corresponding to the quantity of the latent image charges stored in the charge storing section to the integrating capacitor (71b in Figs. 5A-C) of the current detection amplifiers (71). The elements 26a of strip electrode 26 in Fig. 18A corresponds to elements 16a of strip electrode 16 in Figs. 5A-C. Moreover, Fig. 19B shows that it is the elements 26a of strip electrode 26 which are connected to the current detection amplifier 71. Thus, it is clear that the second electrode layer (15 in Figs. 5A-C or 25 in Fig. 18A) comprises of a first conductive member (elements 16a of

Art Unit: 2878

strip electrode 16 in Figs. 5A-C or elements 26a of strip electrode 26 in Fig. 18A) for outputting an electric signal to the current detection amplifier (71a, 71b, 71c in Figs. 5A-C or 71 in Fig. 19B). Tsuji *et al.* disclose (Fig. 1) a second electrode layer (105) having permeability to said electromagnetic wave for reading (110), are provided in this order, and a first conductive member (105) for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording (101) and said photoconductive layer for reading (102) is provided in said second electrode layer (105). Thus claims 1, 4, 8, 11, and 13 are anticipated by Tsuji *et al.*

In response to applicant's arguments (second and third paragraphs on pg 14 of remarks filed 30 September 2002) against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Art Unit: 2878

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878

SL
December 6, 2002